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SUBJECT: Appeal Brief

Serial No.: U.S. Patent Application 10/020,768, filed December 12, 2001

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No. 1854 P. 2

JUL 25 2005

Docket No. 25151A

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application

PAUL A. GEEL

Ser. No. 10/020,768

Filed: December 12, 2001

For: WET-LAID NONWOVEN REINFORCING MAT

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Examiner: Jennifer A. Boyd

Group Art Unit: 1771

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appeal is taken from the rejection of claims 1-8 and 11-24 made in the Office

Action mailed on 24 February 2005 and maintained in the Advisory Action mailed on 11 May 2005. No claim has been allowed. A timely Notice of Appeal was filed on 24 May 2005.

I. REAL PARTY IN INTEREST

The Applicant has assigned 100% of his interest in the present invention as embodied in U.S. Patent Application Serial No. 10/020,768 to Owens-Corning Veil Netherlands BV ("Appellant"), a corporation of the Netherlands having a place of business at Laan van Westenenk, 5, P.O. Box 516, Apeldoorn, Netherlands NL-7300 AM

II. RELATED APPEALS AND INTERFERENCES

Appellant knows of no other appeals or interferences which will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 1-8 and 11-24 remain pending in the application and are the subject of this appeal.

Claims 1-8, 11, 13-18 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 3,622,445 to Heidweiller.

Claims 19, 22 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Heidweiller patent when considered in view of U.S. Patent 6,267,843 to Helwig et al.

Claims 20 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Heidweiller patent in view of U.S. Patent 5,800,675 to Kinsley, Jr.

Claims 1 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,935,879 to Helwig et al.

Finally, claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over the Helwig et al. '879 patent when considered in view of U.S. Patent 6,365,001 also to Helwig et al.

IV. STATUS OF AMENDMENTS

The form of the claims for purposes of this appeal is as presented in the Request for Reconsideration bearing a filing date of 25 April 2005. For the convenience of the Board, a copy of the claims is included in an Appendix forming the final section of this Appeal Brief.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a novel wet-laid nonwoven reinforcing mat (see p. 4 lines 23-24). The reinforcing mat comprises a base web including about 10 to less than 50 percent by weight glass fibers, about 50 to about 90 percent by weight polyethylene terephthalate fibers and polyvinyl alcohol in an amount of about 16 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers. In addition the reinforcing mat comprises a secondary binder in an amount of about 12 to about 30 percent of the combined weight of the glass fibers, polyethylene terephthalate

fibers and polyvinyl alcohol. In particular see present claim 1 as amended and the text at, for example, p. 5 lines 11-24.

The polyethylene terephthalate fibers utilized have a melting point above about 250 degrees C and maintain their fiber character to at least a temperature of 220 degrees C. Further, the polyethylene terephthalate fibers have a fiber diameter ranging from about 6 to about 12 microns. In particular see claims 1, 5 and 7 and the text at col. 6 lines 3-7.

The glass fibers are selected from a group consisting of E glass fibers, C glass fibers, A glass fibers and mixtures thereof. The fibers have a diameter ranging from about 6 to about 16 microns and a length of from about 4 to about 25 mm. In particular see claims 2 and 3 and the text at p. 5 line 25 to p. 6 line 8. The polyethylene terephthalate fibers have a length of from about 4 to about 25 mm (see claim 4 and the text at p. 6 lines 5-7). Aramid fibers may be substituted for the polyethylene terephthalate fibers (see claim 6 and the text at p.6 lines 7-8).

The polyvinyl alcohol binder may be utilized in the form of fibers or powder or both (see claim 8 and the text at p. 6 lines 9-10). The secondary binder may be a water based emulsion or solution type binder. Further the secondary binder may be selected from a group consisting of acrylic, ethylene vinyl acetate and any mixtures thereof. See particularly claims 11 and 12 and the text at p. 6 lines 15-23.

In one possible embodiment the reinforcing mat includes a base web including about 25 to about 40 percent by weight glass fibers, about 60 to about 75 percent by

weight polyethylene terephthalate fibers and polyvinyl alcohol binder in an amount of about 10 to about 20 percent of the total weight of the glass fibers and the polyethylene terephthalate fibers. The secondary binder is provided in an amount of about 15 to about 25 percent of the total weight of the base web. See claims 13-18 and the text at p. 5 lines 16-24. Claim 19 provides that the polyvinyl alcohol is in a fiber form having a diameter of about 6 to about 20 microns and a length of about 4 to about 12 mm. Claim 20 further provides that the polyvinyl alcohol is in a powder form having a particle size of from about 50 to about 250 microns. Support for these claims is found in the specification at, for example, p. 6 lines 9-14. Claim 21 provides that the secondary binder is polyvinyl alcohol. Support for this claim is found in the specification at, for example, p. 6 lines 15-24.

Claim 22 is an independent claim covering a reinforcing mat comprising a base web including about 10 to less than 50 percent by weight glass fibers and about 20 to about 90 percent by weight polyethylene terephthalate fibers, polyvinyl alcohol in an amount of about 5 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers and a secondary binder in an amount of about 10 to about 30 percent of the combined weight of the glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol wherein the polyvinyl alcohol is in a fiber form having a diameter of about 6 to about 20 microns and a length of about 4 to about 12 mm. Support for this claim is found throughout the specification and, particularly, p. 5 lines 11-24 and p. 6 lines 9-11.

Claim 23 provides that the polyvinyl alcohol fiber of the reinforcing mat has a diameter of between about 6 to about 11 microns. Support for this claim can be found at, for example, p. 6 lines 10-11.

Finally, independent claim 24 reads on a reinforcing mat comprising a base web including about 10 to less than 50 percent by weight glass fibers, and about 20 to about 90 percent by weight polyethylene terephthalate fibers, polyvinyl alcohol in an amount of about 5 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers and a secondary binder in an amount of about 10 to about 30 percent of the combined weight of the glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol, wherein the polyvinyl alcohol is a powder form having a particle size of from about 50 to about 250 microns. Support for this claim is found at, for example, p. 5 lines 11-24 and p. 6 lines 9-14.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Board must determine whether claims 1-8, 11, 13-18 and 21 are obvious subject matter under 35 U.S.C. §103(a) in view of U.S. Patent 3,622,445 to Heidweiller.

The Board must determine whether claims 19, 22 and 23 are obvious subject matter under 35 U.S.C. §103(a) over the combination of the Heidweiller patent with U.S. Patent 6,267,843 to Helwig et al.

The Board must determine whether claims 20 and 24 are obvious subject matter under 35 U.S.C. §103(a) over the combination of the Heidweiller patent with U.S. Patent 5,800,675 to Kinsley, Jr.

The Board must determine whether claims 1 and 6 are obvious subject matter under 35 U.S.C. §103(a) over U.S. Patent 5,935,879 to Helwig.

Finally, the Board must determine whether claim 12 is obvious subject matter under 35 U.S.C. §103(a) over the combination of U.S. Patent 5,935,879 to Helwig with U.S. Patent 6,365,001 to Helwig.

VII. ARGUMENT

A. Claims 1-8, 11, 13-18 and 21 clearly patentably distinguish over U.S. Patent 3,622,445 to Heidweiller.

In the Advisory Action the Office maintains her rejection of claims 1-8, 11, 13-18 and 21 based upon the Heidweiller patent while relying upon *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). The Office argues that the amount of glass fibers used in the instant invention is the result of optimization and is therefore unpatentable absent a showing of criticality of the claimed range. While Applicant agrees that *In re Woodruff* stands for this proposition, Applicant believes that given the present fact pattern this decision is not controlling.

In *In re Woodruff*, the applicant sought patent protection for a process for inhibiting the growth of fungi on fresh leafy and head vegetables. The process for which

the applicant sought patent protection differed from the prior art in only one respect. Specifically, the atmosphere provided in the *Woodruff* process included greater than 5 to 25% carbon monoxide while the atmosphere utilized in the prior art process included from 1 to 5% carbon monoxide. Thus, the claimed range and the prior art range for carbon monoxide were contiguous.

In stark and total contrast to this fact pattern, claim 1 of the present invention differs from the cited prior art to Heidweiller in two respects. First, claim 1 provides that the base web includes about 10 to less than 50 percent by weight glass fibers. As already acknowledged by the Office, Heidweiller discloses a web of greater than 50% by weight glass fibers. Second, claim 1 of the present application provides that the polyethylene terephthalate fibers have a diameter of from about 6 to about 12 microns. While the diameter of the organic fibers is not explicitly disclosed in the Heidweiller patent, Heidweiller does refer to pile fibers having a thickness of 1.5 to 50 denier. Using the Office's own density number of 1.38 g/cc for polyethylene terephthalate from page 2 section 3 of the 24 February 2005 Office Action, the calculated fiber diameter for this denier range is 12.4 - 71.5 microns, well outside the claimed range. Significantly, this assumes that the full denier range of 1.5 - 50 denier disclosed in Heidweiller is used for polyethylene terephthalate: an assumption that cannot be validly made since Heidweiller provides a fiber material list including "polyvinyl chloride, polyamides and polyesters" (see col. 2, lines 28-29) but doesn't relate a specific fiber denier to the type of fiber used.

Since claim 1 of the present application differs from the cited Heidweiller patent in two respects rather than one, the holding in *In re Woodruff* is not controlling.

Despite this distinction, the Office continues to maintain that the present case is one of simple optimization. In its broadest sense, any improvement of a method, process or product is one of optimization and as such this terminology is little help in determining patentability. It is the obviousness or nonobviousness of the subject matter that must be determined and it is here that secondary considerations are relevant to the determination of patentability. See *Graham v. John Deere Co.*, 383 US 1, 148 USPQ 459 (1966). In this instance, the secondary considerations all weigh on the side of finding nonobviousness and in fact support the patentability of the present invention.

More specifically, the Office has already acknowledged on the record that “. . . Heidweiller discloses the claimed invention except for that the glass fibers are present in the weight of about 10 to less than 50% as required by claim 1. . . .” The Heidweiller patent issued in 1971, almost 34 years ago.

The applied art suggests that Heidweiller set the “industry standard” for glass fiber content in reinforcing mat products at greater than 50% back in 1971. That standard remained in place through at least 1996 when Helwig et al. filed for protection on a reinforcing mat also including 50 to 95% by weight glass fibers. This suggests that the provision of greater than 50% glass fibers has, in fact, been the industry standard up until the development of the present invention over 30 years later. In contrast to the industry standard, the present invention relates to a mat incorporating less than 50% glass fibers.

Thus, the present invention represents a change in course for the industry after 30 years of product development. There is no logical basis from which one could conclude that such a change would be obvious to those skilled in the art. The passage of over 30 years precludes such a determination.

This single distinction should be enough to support the patentability of present claim 1. When this distinction is considered in further combination with the utilization of polyethylene terephthalate fibers having a diameter from about 6 to about 12 microns (a range clearly outside that taught in the Heidweiller patent), patentability of present claim 1 is still more clearly established. Stated another way, the two distinctions considered together, establish patentability beyond a reasonable doubt. The Heidweiller patent explicitly teaches a web including 50% or more glass fibers and polyester fibers of greater than 12.4 microns. In contrast, the present invention reads on a mat with less than 50% by weight glass fibers and polyethylene terephthalate fibers having a diameter of from about 6 to about 12 microns. Thus, in effect, the Heidweiller patent teaches away from the present invention in two respects.

In effect, the Office has maintained the rejection of claim 1 based upon the Heidweiller patent which explicitly teaches providing 50% or more glass fibers in the web and utilizing polyester fibers of greater than 12.4 micron diameter. Both of these explicit teachings of the Heidweiller patent conflict with and diverge from the claimed invention wherein less than 50% by weight glass fibers and polyethylene terephthalate fibers having a diameter of from 6 to about 12 microns are present in the claimed

reinforcing mat. It is well established that it is error to find obviousness where references “diverge from and teach away from the invention at hand”. See *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983) and *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1599 (Fed. Cir. 1988).

In the instant application the Heidweiller patent teaches away on two counts and there is absolutely no motivation of record to lead one skilled in the art to modify either of these teachings, much less both, to arrive at the claimed invention. In fact, there is nothing of record to indicate how the modification of one teaching might affect the other and the present invention is clearly only within the skill of one of ordinary skill in the art if the teachings of the Heidweiller reference are ignored and hindsight is utilized. It is improper to do this. *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Int. 1985). Thus, it is clearly established that claim 1 patentably distinguishes over the Heidweiller patent and this rejection should be withdrawn.

Claims 2-8, 11, 13-18 and 21 which are rejected on the same grounds are equally allowable for the same reasons. Further, each of these claims include additional limitations that supplement the basis for their allowability. For example, claim 13 provides that the base web includes glass fibers in an amount of about 25 to about 40% by weight of the fibers. This lower weight percentage range further distances the claimed invention from the Heidweiller patent and its divergent teachings. In fact, the range of about 25 to about 40% is not contiguous with the range of 50% or more presented in the Heidweiller patent. The existence of contiguous ranges in the

application and the prior art was a cornerstone upon which the *Woodruff* decision was based. Since contiguity doesn't exist, any grounds for rejection of claim 13 based on the *Woodruff* case does not exist. Undoubtedly, claim 13 should be allowed.

Similarly, claim 14 refers to a base web including between about 60% to about 75% by weight polyethylene terephthalate fibers. Since Heidweiller requires at least 50% by weight glass fibers, it cannot possibly teach or suggest the subject matter of claim 14 and claim 14 should be allowed.

Claim 17 provides that the base web includes about 25 to about 40% by weight glass fibers and about 60 to about 75% by weight polyethylene terephthalate fibers. No such ranges are taught or suggested in Heidweiller. Further, no contiguous ranges are taught or suggested in Heidweiller. Accordingly, the *Woodruff* decision is irrelevant and not controlling. In fact, the Heidweiller reference diverges and teaches away from the invention set forth in claim 17. Under these circumstances, the *Gore* decision is controlling and claim 17 should clearly be allowed.

B. Claims 19, 22 and 23 clearly patentably distinguish over U.S. Patent 3,622,445 to Heidweiller when considered in combination with U.S. Patent 6,267,843 to Helwig et al.

As noted above, the Heidweiller patent explicitly teaches providing a web with 50% or more glass fibers (see col. 2 lines 36-37). U.S. Patent 6,267,843 to Helwig et al. explicitly teaches providing a mat with from 50 to 90% glass (see col. 2 line 31). Thus, as they relate to the provision of at least 50% glass fibers in the web, the Helwig et al.

patent that issued in July 2001 follows the teachings of the Heidweiller patent that issued in 1971. Both of these teachings conflict with the present invention as set forth in claim 19. More specifically, claim 19 depends from claims 18, 17 and 1 reading on a reinforcing mat composition including a base web with about 25 to about 40% glass fibers, about 60 to about 75% by weight polyethylene terephthalate fibers and polyvinyl alcohol in an amount of about 16 to about 20% of the total weight of the glass fibers and the polyethylene terephthalate fibers. Further, in accordance with the limitations of claim 1 from which claim 19 depends, the polyethylene terephthalate fibers have a diameter of from about 6 to about 12 microns.

The present invention as set forth in claim 19 differs from the combination of prior art references in at least three respects. First, both the primary and secondary references to Heidweiller and Helwig et al. explicitly teach providing greater than 50% glass fibers in the mat. This is in contrast to the about 25 to about 40% by weight glass fibers set forth in claim 17 from which claim 19 depends. Second, claim 17 states that the mat includes about 60 to about 75% by weight polyethylene terephthalate fibers. Since both the primary and secondary references require at least 50% glass fibers, by definition they cannot possibly teach or suggest a reinforcing mat including polyethylene terephthalate fibers in an amount of about 60 to about 75% by weight as set forth in claim 17 from which claim 19 depends. Thirdly, the polyethylene terephthalate fibers of the present invention have a diameter of from about 6 to about 12 microns as set forth in claim 1 from which claim 19 depends. As noted above, even when interpreted in a manner most

favorable to the Office's position, the Heidweiller et al. patent only teaches the use of polyester fibers having a diameter greater than 12.4 microns and even as high as up to about six times that diameter. The secondary reference to Helwig et al. is silent as to diameter of any polyethylene terephthalate fibers and, accordingly, does nothing to address this shortcoming of the primary reference to Heidweiller.

While the Office might argue that the various elements and/or concepts of the invention set forth in claim 19 are disclosed in the prior art references, it is significant to note that the Office has failed to present any convincing line of reasoning as to why one skilled in the art would be motivated by the references to arrive at the claimed invention. Further, the failure of those skilled in the art to develop the present invention for over 30 years since the Heidweiller patent issued and to instead follow the teachings of Heidweiller relating to the provision of glass fibers of at least 50 weight percent in a web provides a clear indication that the three distinctions noted above are not obvious modifications and as such claim 19 is patentable over the cited art.

Independent claim 22 like claim 1 refers to a base web including less than 50% by weight glass fibers. In contrast, both the primary reference to Heidweiller et al. and the secondary reference to Helwig et al. explicitly teach providing at least 50% glass fibers in the web. This teaching is consistent with industry practice for the last 34 years and clearly establishes that those skilled in the art have been led away from the present invention as set forth in claim 22. Accordingly, claim 22 should be allowed.

Claim 23 which depends from claim 22 is equally allowable for the same reasons.

C. Claims 20 and 24 clearly patentably distinguish over U.S. Patent 3,622,445 to Heidweiller when considered in combination with U.S. Patent 5,800,675 to Kinsley, Jr.

Claims 20 and 24 very clearly patentably distinguish over the Heidweiller patent when considered in combination with U.S. Patent 5,800,675 to Kinsley, Jr. More specifically, claim 20 depends from claim 1 and, therefore, explicitly requires a base web including about 10 to less than 50% by weight glass fibers. Similarly, like claim 1, claim 24 recites a base web including a bat of less than 50% by weight glass fibers. This is in contrast to the explicit teachings of the Heidweiller reference which refer to a web or mat of 50% or more glass fibers.

The secondary reference to Kinsley, Jr. relates to a process for making a paper based product containing a binder. That product does not include glass fibers and accordingly, this secondary reference does nothing to address or alleviate the shortcoming noted above with respect to the primary reference to Heidweiller.

The Office argues that, "one would have been motivated to create a mat having a base web comprising from 10 to less than 50% glass fibers in order to create a mat with suitable compressive strength. However, the Office's position is supported neither by the case law nor the facts. The passage of 30 years from the issuance of the Heidweiller patent to the development of the present invention as set forth in claims 20 and 24 clearly establishes either a lack of the suggested motivation or the unobviousness of the presently claimed invention. Further, with regard to claim 20, that argument overlooks the second

distinction: that is, claim 20 depends from claim 1 which provides that the polyethylene terephthalate fibers have a diameter from about 6 to about 12 microns. As noted above, the Heidweiller reference fails to teach or suggest such a diameter for polyethylene terephthalate fibers. Further, Applicant can find no reference to PET or polyethylene terephthalate fibers in the Kinsley, Jr. reference and, accordingly, the secondary reference fails to provide any teaching to address the shortcoming noted above with respect to the primary reference to Heidweiller. Thus, there is yet another basis for the allowance of claim 20.

D. Claims 1 and 6 patentably distinguish over U.S. Patent 5,935,879 to Helwig.

As noted above, claim 1 of the present application refers to a base web including about 10 to less than 50% by weight glass fibers and about 50 to about 90% by weight polyethylene terephthalate fibers having a diameter of from about 6 to about 12 microns.

The Helwig '879 patent does indicate that the reinforcing fibers may include a combination of glass fibers and synthetic fibers but fails to provide any specific ratio between the two. Helwig et al. does, however, state at col. 2 lines 40-41, "[it] is desirable for most, if not all, of the reinforcement fabric to be made from glass." This, of course, is consistent with the longstanding industry standard of 50% or more glass fibers in a web as established in the Heidweiller patent noted above.

Examples 1-5 presented in the Helwig et al. patent follow this teaching. More specifically, Examples 1-4 include 100% glass fiber reinforcement. Example 5 does

include a mixed reinforcement including 3200 grams of glass fibers and 800 grams of polyethylene terephthalate fibers or an 80% glass fiber mixture. Based upon the specification including the examples, the Helwig et al. patent teaches away from the about 10 to less than 50% by weight glass fibers explicitly recited for the base web in claim 1 of the present application.

As also noted by the Office, the polyethylene terephthalate (PET) fibers in Example 5 of the Helwig et al. patent have a diameter of approximately 12.6 microns which is greater than the about 6 to about 12 microns for the diameter of the PET fibers explicitly set forth in present claim 1. Thus, there is a further, second distinction between the present invention and the prior art.

Based upon these comments it is clear that claim 1 distinguishes from the Helwig et al. patent in two respects: the range of glass fibers present in the web and the diameter of the PET fibers present in the web. Considered together, these two distinctions are sufficient to support the patentability of claim 1 and accordingly, this rejection of claim 1 should be withdrawn. Claim 6 depends from claim 1 and should also be allowable for the same reasons.

E. Claim 12 clearly patentably distinguishes over U.S. Patent 5,935,879 to Helwig et al. when considered in combination with U.S. Patent 6,365,001 to Helwig.

Claim 12 of the present application reads on a wet-laid nonwoven reinforcing mat including a base web having about 10 to less than 50% by weight glass fibers, about 50 to

about 90% by weight polyethylene terephthalate fibers having a diameter of from about 6 to about 12 microns and polyvinyl alcohol in an amount of about 16 to about 35% of the combined weight of the glass fibers in the polyethylene terephthalate fibers. The web further includes a secondary binder in an amount of about 12 to about 30% of the combined weight of the glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol. In accordance with claim 12 that secondary binder is selected from a group consisting of acrylic, ethylene vinyl acetate and any mixtures thereof.

As noted above, the primary reference to Helwig et al., U.S. Patent 5,935,879, discloses a mat including a mixture of glass and synthetic fibers wherein "it is desirable for most, if not all, of the reinforcement fibers to be made from glass." In Example 5 of the Helwig et al. '879 patent, the reinforcement fibers comprise 80% glass and 20% polyethylene terephthalate. The polyethylene terephthalate fibers used have a diameter of 12.6 microns, a diameter greater than the claimed range of about 6 to about 12 microns set forth in claim 1. Further, the primary reference does not teach or suggest providing a secondary binder selected from a group consisting of acrylic, ethylene vinyl acetate and any mixtures thereof.

In an effort to address the shortcomings of the primary reference and support a rejection of claim 12, the Office combines the primary reference with U.S. Patent 6,365,001 to Helwig et al. While it is true that the Helwig et al. '001 patent discloses a mat incorporating a secondary binder comprising among other possibilities acrylic and vinyl acetate-ethylene copolymers, it is also equally true that the Office must not just, " . .

. cite references that show that one or more elements or subcombinations thereof, when each is viewed in a vacuum, is known. . . . To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the Office must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” See *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). Clearly the ‘879 Helwig et al. patent or primary reference explicitly states that most, if not all, of the reinforcement fibers should be made of glass. Significantly, the secondary reference, the Helwig et al. ‘001 patent, discloses a mat wherein 100% of the reinforcement fibers are glass fibers. Together, these teachings very clearly diverge from the claimed invention wherein less than 50% of the reinforcement fibers are glass fibers. In addition, even if the secondary reference/’001 Helwig et al. patent teaches utilizing a secondary binder comprising acrylic and vinyl acetate-ethylene copolymers, it must be appreciated that it only teaches using such a secondary binder in the presence of reinforcement fibers that are 100% glass. The secondary reference provides no teaching or suggestion whatsoever to indicate to one skilled in the art that such a secondary binder is appropriate for use where the reinforcement fibers include less than 50% glass and from about 50 to about 90% by weight polyethylene terephthalate fibers as set forth in claim 1 from which claim 12 depends. In this instance, it is very clear that the artisan would not have found it obvious to selectively pick and choose elements or concepts from the various references so as to

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arrive at the claimed invention without using present claim 12 as a guide. Such an approach is improper under the law (again, please note *Ex parte Clapp, supra*). Accordingly, the rejection of claim 12 should be withdrawn and this claim should be allowed.

F. Summary of Arguments

In summary, Appellant has addressed and met every rejection set forth in the final Office Action. Upon careful review of the cited references in light of these comments, it is believed that the Board will agree that all of the presently pending claims patentably distinguish over the prior art and should be formally allowed. Accordingly, it is respectfully requested that the rejections of the Office relating to claims 1-8 and 11-24 be reversed and that the present application be remanded to the Office for allowance.

VIII. CLAIMS APPENDIX

The claims on Appeal read as follows:

1. (previously presented) A wet-laid nonwoven reinforcing mat, comprising:
 - (a.) a base web including about 10 to less than 50 percent by weight glass fibers, about 50 to about 90 percent by weight polyethylene terephthalate fibers having a diameter of from about 6 to about 12 microns and polyvinyl alcohol in an amount of about 16 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers; and

(b.) a secondary binder in an amount of about 12 to about 30 percent of the combined weight of said glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol.

2.(original) The reinforcing mat of claim 1 wherein said glass fibers are selected from a group consisting of E glass fibers, C glass fibers, A glass fibers and any mixtures thereof.

3.(original) The reinforcing mat of claim 1 wherein said glass fibers have a diameter of from about 6 to about 16 microns and a length of from about 4 to about 25 mm.

4.(previously presented) The reinforcing mat of claim 1 wherein said polyethylene terephthalate fibers have a length of from about 4 to about 25 mm.

5.(original) The reinforcing mat of claim 1 wherein said polyethylene terephthalate fibers have a melting point above about 250EC.

6.(previously presented) The reinforcing mat of claim 5 wherein aramid fibers are substituted for said polyethylene terephthalate fibers.

7.(previously amended) The reinforcing mat of claim 1 wherein said polyethylene terephthalate fibers do not melt below 220EC.

8.(original) The reinforcing mat of claim 1 wherein said polyvinyl alcohol is in a form of a fiber, a powder or both.

9.(canceled)

10.(canceled)

11.(original) The reinforcing mat of claim 1 wherein said secondary binder is a water based emulsion or solution type binder.

12.(previously presented) The reinforcing mat of claim 1 wherein said secondary binder is selected from a group consisting of acrylic, ethylene vinyl acetate and any mixtures thereof.

13.(original) The reinforcing mat of claim 1 wherein said base web includes glass fibers in an amount of about 25 to about 40 percent by weight of the fibers.

14.(original) The reinforcing mat of claim 1 wherein said base web includes polyethylene terephthalate fibers in an amount of about 60 to about 75 percent by weight of the fibers.

15.(previously presented) The reinforcing mat of claim 1 wherein said polyvinyl alcohol is provided in an amount of about 16 to about 20 percent of the total weight of the glass fibers and the polyethylene terephthalate fibers.

16.(original) The reinforcing mat of claim 1 wherein said secondary binder is provided in an amount of about 15 to about 25 percent of the total weight of said base web.

17.(previously presented) The reinforcing mat of claim 1 wherein said base web includes glass fibers in an amount of about 25 to about 40 percent by weight, polyethylene terephthalate fibers in an amount of about 60 to about 75 percent by weight and polyvinyl alcohol in an amount of about 16 to about 20 percent of the total weight of the glass fibers and the polyethylene terephthalate fibers.

18.(original) The reinforcing mat of claim 17, wherein said secondary binder is provided in an amount of about 15 to about 25 percent of the total weight of said base web.

19.(original) The reinforcing mat of claim 18 wherein said polyvinyl alcohol is in a fiber form having a diameter of about 6 to about 20 microns and a length of about 4 to about 12 mm.

20.(original) The reinforcing mat of claim 19 wherein said polyvinyl alcohol is in a powder form having a particle size of from about 50 to about 250 microns.

21.(previously presented) The reinforcing mat of claim 1 wherein said secondary binder is polyvinyl alcohol.

22.(previously presented) A wet-laid nonwoven reinforcing mat, comprising:

(a.) a base web including about 10 to less than 50 percent by weight glass fibers, and about 20 to about 90 percent by weight polyethylene terephthalate fibers;

(b.) polyvinyl alcohol in an amount of about 5 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers; and

(c.) a secondary binder in an amount of about 10 to about 30 percent of the combined weight of said glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol;

wherein said polyvinyl alcohol is in a fiber form having a diameter of about 6 to about 20 microns and a length of about 4 to about 12 mm.

23.(previously presented) The reinforcing mat of claim 22 wherein said polyvinyl alcohol fiber has a diameter of between about 6 to about 11 microns.

24.(previously presented) A wet-laid nonwoven reinforcing mat, comprising:

- (a.) a base web including about 10 to less than 50 percent by weight glass fibers, and about 20 to about 90 percent by weight polyethylene terephthalate fibers;
- (b.) polyvinyl alcohol in an amount of about 5 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers; and
- (c.) a secondary binder in an amount of about 10 to about 30 percent of the combined weight of said glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol;

wherein said polyvinyl alcohol is in a powder form having a particle size of from about 50 to about 250 microns.

Respectfully submitted,



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